

REMARKS

Applicants thank the Examiner for acknowledging receipt of the papers submitted under 35 U.S.C. § 119(a)-(d) and for making of record the IDS's filed on 12/17/03 and 8/2/05. Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 17-20 are cancelled. Claims 9 and 22 are currently being amended to correct a typographical error.

This amendment changes and deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-16 and 21-27 are now pending in this application.

Claim Objections

Claims 5 and 26 were objected to by the Examiner. The Examiner asserts that claim 5 introduces a record medium. However, the "medium" claimed in claim 5 refers to the same "medium" being claimed in claim 1. Thus, the "medium" limitation is not introduced in claim 5. Accordingly, Applicants respectfully request that the objection be withdrawn.

Claims 17-20 were objected to as being purely "for use" limitations. Claims 17-20 have been cancelled making this objection moot. Therefore, Applicants respectfully request that the objection be withdrawn.

Drawings

The drawings were objected to for not showing the limitations of claims 17-20. Claims 17-20 have been cancelled making this objection moot. Therefore, Applicants respectfully request that the objection be withdrawn.

Claim Rejections under 35 U.S.C. § 112

Claims 17-20 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Claims 17-20 have been cancelled making this rejection moot. Therefore, Applicants respectfully request that the rejection be withdrawn.

Double Patenting

Claims 1-16 and 21-27 were provisionally rejected under the judicially created doctrine of non-statutory obvious type double patenting as being unpatentable over copending Application No. 10/736600. An appropriate terminal disclaimer together with the requisite fee will be submitted when and if copending Application No. 10/736600 issues as a patent.

Claim Rejections under 35 U.S.C. § 102

Claims 1-3, 5-7, 9-10, 12-16, 21-23 and 25-27 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,477,132 (“Azuma”). In response, Applicants respectfully traverse the rejection for the reasons set forth below.

Applicants rely on M.P.E.P. § 2131, entitled “Anticipation – Application of 35 U.S.C. § 102(a), (b) and (e)” which states, “a claim is anticipated only if each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” Applicants respectfully submit that Azuma does not describe each and every element of the claims.

Independent claims 1, 12, 15, 21 and 25 recite a sensing/sensor device, a method for using a sensing device and a method for making a sensing device. Independent claim 1 is directed to a sensing device including “a device associated with one of the cantilever and the medium which is responsive to changes in electrical field between the medium and the cantilever caused by a distance between the medium and the cantilever changing.” Independent claim 25 is directed to a sensor device comprising “FET sensing means disposed with a second of the cantilever and the medium for responding to changes in an electric field induced by a change in clearance between the medium and the cantilever.”

Independent claim 12 is directed to a method of using a sensing device comprising “moving a probe supported on a cantilever relative to a medium that has a data indicative topography followed by the probe, the medium being associated with a substrate producing an electric field.” Similarly, independent claim 15 is directed to a method of using a sensing device including the step of “gating the FET using the electric field produced by the second structure and produce a signal indicative of the amount of separation between the first and second structures.”

Independent claim 21 is directed to a method of making a sensing device including the step of “adapting the probe to follow a topography of a medium which is movable relative to the probe and which is associated with a substrate which is adapted to produce an electric field which acts as a gate for the FET.”

Independent claims 6 and 9 recite a read mechanism. Independent claim 6 is directed to a read mechanism comprising “a cantilever disposed with an electrically non-conductive medium which is movable relative to the cantilever, the cantilever having a probe which follows a topography of the medium.” Independent claim 9 recites a read mechanism including “a cantilever disposed with a medium which is movable relative to the cantilever, the cantilever having a probe extending from the cantilever and in contact with a surface of an electrically conductive medium to follow changes in a data indicative topography of the medium.”

Accordingly, the claims clearly indicate that the present invention is directed to a sensor arrangement using a FET which responds to changes in distance. The topography of the claimed medium causes the distance between the cantilever and medium to vary. The distance variation allows a FET formed on the end of the cantilever to respond to changes in an electric field and modulate a signal in accordance with the amount of clearance between the medium and the cantilever. Further, since the medium is electrically non-conductive the modulation of current passing through the FET is due solely to the changes in the electrical field which are produced between the cantilever and the substrate.

In contrast, Azuma does not disclose, teach or suggest each and every limitation of independent claims 1, 6, 9, 12, 15, 21 and 26. Specifically, Azuma does not disclose a sensing device responsive to changes in electrical field between the medium and the cantilever caused by a change in distance between the medium and the cantilever. Instead, Azuma is directed to a probe and information/recording apparatus that uses a thin film adapted to record information as a local change of electric conductivity. (*See Col. 6, lines 45-47; FIG. 1.*) The medium disclosed in Azuma is electrically conductive. As shown in FIG. 1, reference symbol 206 denotes a low conductivity portion and reference symbol 207 denotes a high conductivity portion. (*See Col. 6, lines 49-51.*)

The probe of Azuma detects recorded information based on the conductivity of the thin film, not its topography. (*See Col. 7, lines 24-33, “When information is recorded by storing locally an electric charge on a recording medium or by locally inverting the spontaneous polarization of the recording medium that is made of a ferroelectric thin film, the presence or absence of a recording bit, or the presence or absence of a stored electric charge or the difference in the orientation of polarization, is converted into a difference in the electric potential of the electroconductive sensing needle or a difference in the orientation of dielectric polarization in the electroconductive sensing needle. The gate voltage of the field effect transistor in the vicinity of the threshold value V_{sub.T} is fluctuated by that conversion, and the channel between the drain and the source of the field effect transistor is turned ON/OFF or the channel resistance is modulated depending on the difference in the gate voltage of the transistor so as to output a binary signal corresponding to the recorded information.”*)

Accordingly, Azuma does not disclose each and every limitation of independent claims 1, 6, 9, 12, 15, 21 and 26. Thus, Applicants respectfully request that the rejection be withdrawn and independent claims 1, 6, 9, 12, 15, 21 and 26 be allowed. In addition, claims 2-5, 7, 10-11, 13, 14, 16, 22-25 and 27 depend from one of claims 1, 6, 9, 12, 15, 21 or 26 and are therefore allowable for the reasons set forth above without regard to further patentable limitations recited therein. Further, Azuma does not disclose “a surface of the medium having a topography that causes the distance between the cantilever and the medium to vary” as claimed in claim 2, nor does Azuma disclose a sensing device “wherein the medium is

electrically non-conductive and is supported on a substrate which is electrically conductive, and wherein the substrate is circuited with the FET so that variations in the electrical field which result from a change in distance between the medium and the cantilever" as claimed in claim 5. For these additional reasons, Applicants respectfully request that the rejection be withdrawn and claims 2-5, 7, 10-11, 13, 14, 16, 22-25 and 27 be allowed.

Claim Rejections under 35 U.S.C. § 103

Claims 4, 8, 11 and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma in further view of U.S. Patent No. 4,538,165 ("Chang"). As stated above, Azuma does not disclose, teach or suggest each and every limitation of claims 1, 6, 9 and 21. Claims 4, 8, 11 and 24 depend from one of claims 1, 6, 9 or 21 and are therefore allowable for the reasons set forth above without regard to further patentable limitations recited therein. Further, Chang fails to cure the deficiencies of Azuma. Accordingly, Applicants respectfully request that the rejection be withdrawn and claims 4, 8, 11 and 24 be allowed.

Conclusion

Applicants believe that the present application is now in condition for allowance.
Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 C.F.R. § 1.25. Additionally, charge any fees to Deposit Account 08-2025 under 37 C.F.R. § 1.16 through § 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

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